

KULAGIN, S.G.; KOVBASYUK, L.D.; DAGAYEV, M.M.; LAZAREVSKIY, V.S.;
 DEMIDOVICH, Ye.G.; BRONSHTEN, V.A.; YAKHONTOVA, N.S. (Leningrad);
 KUROCHKIN, N.Ye.; DOKUCHAYEVA, O.D.; SHCHERBINA-SAMOYLOVA, I.S.;
 MASEVICH, A.G.; LIPSKIY, Yu.N.; MARTYNOV, D.Ya.; ARSENT'YEV, V.V.;
 MOROZ, V.I.; MASEVICH, A.G.; PEREL', Yu.G.; BAKULIN, P.I., *otv.*
red.; KULIKOV, G.S., *red.*; AKHLAMOV, S.N., *tekhn. red.*

[Astronomical calendar; yearbook. Variable part, 1962] Astronomicheskii kalendar'; ezhegodnik. Peremennaya chast', 1962. Red. kollegiya: P.I. Bakulin i dr. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961. 259 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo, no. 65) (MIRA 14:12)

1. Gosudarstvennoye astronomo-geodezicheskoye obshchestvo (for Kulagin, Kovbasyuk, Lazarevskiy, Demidovich). 2. Moskovskoye ot-deleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva (for Dagayev, Bronshten, Kurochkin).
 (Astronomy—Yearbooks)

BAKULIN, P.I.

61

PHASE I BOOK REVIEWS: 501/5721

Vsesoyuznaya astronomicheskaya konferentsiya.

Trudy 14-y Astronomicheskoy konferentsii SSSR, Kiev, 27-30 maya 1958 g.
(Transactions of the 14th Astronomical Conference of the USSR, Held in Kiev
27-30 May 1958) Moscow, Izd-vo AN SSSR, 1960. 440 p. Errata slip inserted.
1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Glavnaya astronomicheskaya observatoriya
(Pulkovo).

Resp. Ed.: M. S. Zverev, Corresponding Member, Academy of Sciences USSR; Ed. of
Publishing House: N. K. Zaychik; Tech. Ed.: R. A. Zamarayeva.

PURPOSE: The book is intended for astronomers and astrophysicists, particularly
those interested in astronomical research.

COVERAGE: This publication presents the Transactions of the 14th Astronomical
Conference of the USSR, held in Kiev 27-30 May 1958. It includes 27 reports
and 55 scientific papers presented at the plenary meeting of the Conference

Card 1/26

Transactions of the 14th Astronomical (Cont.)

SOV/5721

and at the special sectional meetings. An appendix contains the resolutions adopted by the Conference, the composition of the committees, the agenda, and the list of participants at the Conference. A brief summary in English is given at the end of each article. References follow individual articles. The Presidium of the Astronomical Committee (Chairman M. S. Zverev), which supervised the preparation of this publication, expresses thanks to the members of the secretariat: V. M. Vasil'yev, I. G. Kol'chinskii, A. B. Onegina, and Kh. I. Potter.

TABLE OF CONTENTS:

Foreword

3

Address by A. A. Mikhaylov, Chairman of the Astronomical Council of the Academy of Sciences USSR

7

REPORTS OF THE ASTRONOMICAL COMMITTEE AND SUBCOMMITTEES
INFORMATION ON ASTRONOMICAL WORK PRESENTED BY VARIOUS INSTITUTIONS

Card 2/16

Transactions of the 14th Astrometrical (Cont.)

SOV/5721

Program From March 1957 to April 1958 at the Gor'kiy Latitude
Station imeni K. K. Dubrovskiy

287

Drozhdov, S. V. The Method of the Zenith Point on the Micrometer
Head as a Means of Investigating the Behavior of the Instrument

292

Potter, Kh. I. The Photographic Zenith-Telescope of the Pulkovo
Observatory

298

Popov, N. A. Organization of Azimuth Observations at Poltava

301

Belotserkovskiy, D. Yu. The Problem of Longitudes of Time Services

313

Bakulin, P. I., and V. V. Podobed. Some Problems of the Operations
of the Time Service in the USSR

319

Nadeyev, L. N. Preliminary Results of Two-Year Determinations of
Time Corrections by the Chain Method

324

Card 12/16

BAKULIN, P.I., otv. red.; DAGAYEV, M.M., red.; KULAGIN, S.G., red.;
KUROCHKIN, N.Ye., red.; MASEVICH, A.G., red.; RAKHLIN, I.Ye.,
red.; BRUDNO, K.F., tekhn. red.

[Astronomical calendar. Yearbook for 1963. Varying part]
Astronomicheskii kalendar'. Ezhegodnik. Poremonnaia chast',
1963. Red. kollegiia: P.I.Bakulin i dr. Moskva, Fizmatgiz,
1962. 287 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo,
no.66) (MIRA 15:12)

(Astronomy--Yearbooks)

BAKULIN, P.I., otv. red.; DAGAYEV, M.M., red.; KULAGIN, S.G.,
red.; KUROCHKIN, N.Ye., red.; MASEVICH, A.G., red.;
RAKHLIN, I.Ye., red.; SHKLYAR, S.Ya., tekhn. red.

[Astronomical calendar: Yearbook. varying part, 1964.] Astronomi-
cheskii kalendar', Ezhegodnik, peremennaya chast', 1964. Red. koll.
P.I. Bakulin i dr. Moskva, Fizmatgiz, 1963. 279 p. (Vse-
soiuznoe astronomogeodezicheskoe obshchestvo, no. 67)
(MIRA 17:1)

BAKULIN, P.I., otv. red.; DAGAYEV, M.M., red.; KULAGIN, S.G., red.;
KUROCHKIN, N.Ye., red.; MASEVICH, A.G., red.; RAKHLIN,
I.Ye., red.

[Astronomical calendar; yearbook, variable part for 1965]
Astronomicheskii kalendar'; ezhegodnik. Peremennaya chast'
1965. Red. kollegiia: P.I.Bakulin i dr. Vypusk 68 p. Mo-
skva, Nauka, 1964. 290 p. (MIRA 17:10)

BAKULIN, I.I., osv. red. DADAYEV, M.M., red. KULAGIN, S.G.,
red.: KURCHIKIN, N.Ye.; red. MASENICH, A.G.; red.
RAKHILIN, I.Ye.; red.

[Astronomical calendar; yearbook. Variat a part 1966]
Astronomicheskii kalendar' s kibegolinsk. Ieremennaya
chast' 1966. Red. kollegiya: E. I. Rakhilin i dr. 2 pp. 9
Moskva, Nauka, 1965. 251 s. (MIRA 18:11)

BAKULIN, P.M.

Technic of preparation of catgut. Fel'dsher & akush., Moskva No.2:50-51
Feb 52. (CINL 21:4)

1. Operating Feldsher

1. BAKULIN, P.M. Feldsher
2. USSR (600)
4. Surgical Nursing
7. Duties of surgical nurse in preparing for and during an operation. Med.sesstra no. 11
1952

9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

BAKULIN, S.

What one should know about economic indexes. Vneshtorg. 26 no.3:
27-29 Mr '56. (Economics--Indexes) (MIRA 9:7)

SMIRNOV, K.M.; BAKULIN, S.A.; GOLOVINA, L.L.; ZAK, E.Ya.; KOGAN, S.D.

Effect of competitive athletics on gas exchange, pulse rate, arterial pressure and work capacity in humans. *Fiziol.shur.* 45 no.3:289-294 '59. (MIRA 12:11)

1. From the Postgraduate Medical Institute, Leningrad, and the Central Institute of Physical Culture, Moscow.

(ATHLETICS,

blood pressure, pulse rate, resp. & work capacity
in athletes (Rus))

(BLOOD PRESSURE,
in athletes (Rus))

(RESPIRATION,
same)

(WORKING,
capacity in athletes (Rus))

(PULSE,
in athletes (Rus))

BAKULIN, S.A.

Characteristics of gas exchange during muscular work in differently trained adolescents aged from 14 to 17. Fiziol.sbur. 45 no.9:1136-1141 S '59. (MIRA 13:1)

1. Gosudarstvennyy tsentral'nyy institut fizicheskoy kul'tury im. I.V. Stalina i Leningradskiy nauchno-issledovatel'skiy institut fizicheskoy kul'tury.

(RESPIRATION physiol.)

(MUSCLES physiol.)

(PHYSICAL EDUCATION AND TRAINING)

BAKULIN, S. A., Cand Biol Sci -- "^{Variations in}~~Changes in~~ gas metabolism and certain other
functions ^{in muscular work among} in variously trained 14-17 year-old ^{adolescents.} ~~juveniles during muscular work.~~"
Mos, 1960. (Inst of Physical Training and School Hygiene, Acad Fed Sci RSFSR).
(KL, 1-61, 187)

BAKULIN, S.B.

Two works of P.D.Chudakov. Kus.-shtam.proisv. 3 no.7:46-48 J1
'61. (MIRA 14:6)
(Sheet-metal work)

POTEKUSHIN, N.V.; KURATOVA, L.P.; RIGER, M.M.; BAKULIN, S.B.

"Handbook on the manufacture of sheet metal working dies" by
V.M.Anikin, IU.S.Lukashin. Reviewed by N.V.Potekushin and others.
Kuz.-shtam.proizv. 4 no.2:45-47 F '62. (MIRA 15:2)
(Dies (Metalworking)) (Sheet-metal work)
(Anikin, V.M.) (Lukashin, IU.S.)

SHIRMAN, S.I.; BAKULIN, S.B.

"Little waste and waste-free sheet-metal work" by V.A. Volosatov.
Kuz.-shtam. proizv. 4 no.7:46-47 JI '62. (MIRA 15:7)
(Sheet-metal work)
(Volosatov, V.A.)

BAKULIN, S.B.

Unified standards and technical instructions on conducting forging
and sheet metal working operations. Kuz.-shtam.proizv. 7 no.2:38-
39 F '65. (MIRA 18:4)

PAWEL, GREGORY VIKOLAY VICH

1

751

.B1

1952

Statistika vneshey trgovli kapitalisticheskikh stran. (Statistics of Foreign Trade of Capitalistic Countries).

Moskva, vneshtorgisdat, 1952.

222 p. tables.

Bibliography: p. 217 - (219).

BAKULIN, V. and KRAVETS, A.

"A Moving Training Tank with Rocket Turret," Tankist, No 4, pp 56-58, 1954

Translation - M-294, 22 Mar 55

BAKULIN, V.

AID P - 1145

Subject : USSR/Mining

Card 1/1 Pub. 78 - 23/25

Author : Bakulin, V.

Title : Experience of A. N. Kibal'nikov, brigade's foreman

Periodical : Neft. khoz., v. 32, #11, 90-93, N 1954

Abstract : The author describes various organizational details for the thorough coordination of the drilling operation including the assembly and dismantling of the rig and its transfer to another place. In 1953 the brigade drilled 16,500 meters of wells without accident at an average speed of 1380 meters per month per rig.

Institution : None

Submitted : No date

BAKULIN, Y.G.

The comprehensive introduction of progressive work methods. Sots.
trud. no.5:67-71 My '56. (MLRA 9:8)
(Oil well drilling)

BAKULIN, V.O.

~~SECRET~~
New successes of foreman Romanchenko's drilling crew. Neft.khoz.
33 [1.e.34] no.9:67-68 8 '56. (MLRA 9:10)
(Oil well drilling)

BAKULIN, V.O.

In the struggle for a high drilling pace. Neft.khos. 34 no.5;
63-64 My '56.

(MLRA 9:8)

(Oil well drilling)

~~BAKIDIN, V.O.~~ REZNICHENKO, I.N.

Hydraulic method of preparing and weighting drilling fluid. Neft.khes.
34 no.8:20-22 Ag '56. (MIRA 9:10)
(Oil well drilling fluids)

BAKULIN, Vladimir Georgiyevich; KURASHEV, V.A., redaktor; VATOLIN, G.N.,
vodushchniy redaktor; KHLBNIKOVA, L.A., tekhnicheskii redaktor

[Experience in introducing progressive work methods in oil well
drilling] Opyt vnedreniya peredovykh metodov truda v burenii.
Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry,
1957. 50 p. (MLRA 10:9)
(Oil well drilling)

BAJULIN, V.G.

Work practice of master driller P.P. Popov's crew (Krasnodar Petroleum Trust). Neft. khoz. 35 no.12:64-65 D '57. (MIRA 11:2)
(Krasnodar region--Oil well drilling)

92-2-21/37

AUTHOR: Bakulin, V. G.

TITLE: Metal Hinge Joint for a Drill Hose (Metallicheskiye sharnirnoye soyedineniye k burovym rukavam)

PERIODICAL: Neftyanik, 1958, Nr 2, pp 20-22 (USSR)

ABSTRACT: The author states that an examination of the drill hoses with reinforced ends used on the rigs of the Krasnodarnefterazvedka trust revealed that their normal wear develops after 110-140 days of intensive operation, during which 5,000 m. have been drilled. To protect end packing from accidental damage, hoses were usually tightened by coils strengthened with special gum and bolts. In most cases the wear of a drill hose is the result of the bending stress at both ends of the hose. To reduce this wear, the hose should not have any sharp bends in the sections attached to the stand pipe or to the swivel. In order to eliminate the undesirable bending stress in hoses used in high-pressure drilling of a bore hole, the use of metal hinge joints instead of coils is recommended. Such hinge joints will make it possible to lower the square grip stem without bending the drill hose ends. The use of these joints will permit an air-

Card 1/2

Metal Hinge Joint for a Drill Hose (Cont.)

92-2-21/37

tight passage of drilling mud pumped in under high pressure, and will ensure the proper operation of the hose regardless of the position which the grip stem may have. There are two sketches and one photo showing the equipment described.

AVAILABLE: Library of Congress

Card 2/2

BAKULIN, V.G.

Use of hydraulic weight indicators in structure and test
drilling. Neftianik 5 no.3:8-10 Mr '60. (MIRA 14:9)

1. Upravleniye Krasnodarneft'.
(Oil well drilling--Equipment and supplies)

BAKULIN, V.G.

Using "Ufimets-Shmidt" and "Shmidt" drilling rigs in oil fields
of the Krasnodar Petroleum Trust. Neft.khos. 38 no.8:63-66
Ag '60. (MIRA 13:8)
(Krasnodar region--Oil well drilling rigs)

BAKULIN, Vladimir Georgiyevich; ROSHCIN, P.F., red.; DUBROVINA, N.D.,
vedushchiy red.; MUKHINA, E.A., tekhn. red.

[Test well drilling; practice of petroleum workers of the Krasno-
dar Economic Region] Poiskovoe burenie; opyt nef'tianikov Krasnodarsko-
go raiona. Moskva, Gos. nauchno-tekhn. izd-vo nef't. i gorno-toplivnoi
lit-ry, 1961. 86 p. (MIRA 14:7)
(Krasnodar Territory--Boring)

BAKULIN, V.G., starshiy inzh.

Practice of drilling prospecting holes in the Kuban. Neftianik 6
no.3:25-26 Mr '61. (MIRA 14:10)

1. Krasnodarskiy filial Vsesoyuznogo nefte-gazovogo nauchno-
issledovatel'skogo instituta.
(Kuban—Petroleum geology)

SADON, M.I.; BAKULIN, V.G.

Complications in test drilling. Neft. khoz. 39 no.2:64-66 F '61.
(MIRA 17:2)

PANOV, B.D.; BAKULIN, V.G.

Effect of some factors on the size and condition of the recovered
core. Neft. khos. 40 no.1:21-26 Ja '62. (MIRA 15:2)
(Core drilling)

BAKULIN, Vladimir Georgiyevich; LAVROV, N.I., ved. red.

[Drilling prospecting wells] Burenie poiskovykh skva-
zhin. Moskva, Nedra, 1964. 285 p. (MIRA 18:2)

SIDOROV, Nikolay Aleksandrovich; BAKULIN, Vladimir Georgiyevich;
KIRICHEK, Filipp Prokhorovich

[Improving the design of deep exploratory boreholes for
oil and gas] Usovershenstvovanie konstruktsii glubokikh
razvedochnykh skvazhin na neft' i gaz. Moskva, Nedra,
1965. 118 p. (MIRA 19:1)

BAKULIN, V.I.

Neutron-adsorption analysis of rare earths and mercury. Geofiz.
prib. no. 12:96-106 '62. (MIRA 17:5)

1. NIIGA.

BAKULIN, V.I.

Differences in the spectral response of scintillation gamma-
radiometers. Geofiz. prib. no.15:73-79 '63. (MIRA 17:4)

KUDRYAVTSEV, V.A.; MELAMED, V.G.; BAKULIN, V.P.

Forecasting, during operation of the steady-state temperature conditions of the dam and foundation bed of the Vilyuy Hydroelectric Power Station. Vest. Mosk. un. Ser. 4: Geol 18 no.5:70-77 S-0'63. (MIRA 17:2)

1. Kafedra merslotovedeniya Moskovskogo universiteta.

L 23020-66 EWT(m)/EWP(t)/EWP(k) IJP(c) JD/HW.
ACC NR: AF6007658 SOURCE CODE: UR/0413/66/000/003/0016/0016
AUTHOR: Polyak, S. M.; Perper, F. A.; Glukhatkina, Ye. A.; Bakulin, V. G.
ORG: none
TITLE: Device for forming without the use of presses. Class 7,
No. 178348
SOURCE: Izobreteniya, promyshlennyye obrasty, tovarnyye znaki, no. 3,
1966, 16
TOPIC TAGS: die, metal forming
ABSTRACT: An Author Certificate has been issued for a device for forming without the use of presses; it consists of a concrete female die, which is enclosed in a metal housing duct for evacuating air from the working cavity, and drawing and holddown rings. In order to increase the durability of female dies for multiple dynamic loading, the upper base of the die and the drawing ring have an intermediate layer of rubber with 1-mm holes situated to fit the air ducts in the die; on evacuation the rubber adheres tightly to the female die (see Fig. 1). Orig. art. has: 1 figure. [LD]
Card 1/2 UDC: 621.7.044.2

L 23020-66

ACC NR: AP6007658

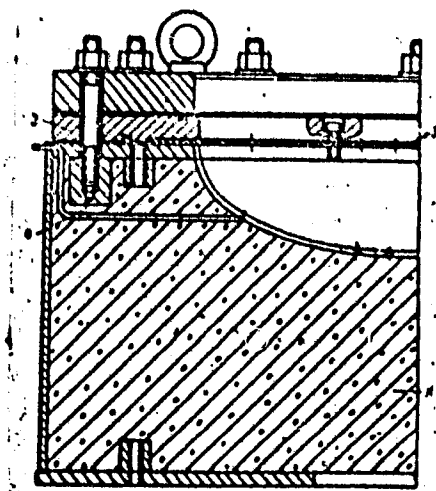


Fig. 1. Device for forming without a press. 1 - female die;
2 - drawing ring; 3 - rubber layer; 4 - ducts

SUB CODE: 11, 13/

SUBM DATE: 26Mar64/

Cord 2/2 *plw*

SOV/120-59-5-38/46

AUTHORS: Bakulin, Ye. A. and Stepin, Ye. V.

TITLE: A Source for the Isotopic Analysis of Chlorine

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 5,
pp 138-139 (USSR)

ABSTRACT: A description is given of an ion source for the measurement of the isotopic composition of chlorine based on the phenomenon of surface ionization. The ion source was developed for the analysis of small quantities of chlorine in chlorine-containing specimens. In order to increase the number of analysed specimens without releasing the vacuum, the source was made up of four independent evaporators and ionizers fixed on a drum (Fig 1,2). The device is shown in Fig 1 in which 1 is the evaporator, 2 is the drum, 3 is an insulator, 4 is a tungsten wire, 5,6 are sleeves, 7 is a bronze plate, 8 is a glass holder, 9 is a centring washer. The evaporators were made of tantalum foil, 0.15 mm thick and in the form of narrow "boats". The ionizers were in the form of tungsten wires 0.15 mm in diameter and placed above the boats with the aid of special sleeves. The sagging of the wires on heating was prevented by

Card1/3

A Source for the Isotopic Analysis of Chlorine SOV/120-59-5-38/46

flexible bronze plates. The specimens could be changed by rotating the glass support. The chlorine-containing salt was deposited in the form of a solution of ethyl alcohol. The use of ethyl alcohol is convenient since it wets tantalum and the salt is deposited in a uniform layer. The wire could be heated up to 2500°C and since evaporation of the salt from the boat due to thermal radiation from the wire was small, the evaporator had to be heated independently. The evaporator was heated with a current of 2 to 3 A. Fig 2 shows the disposition of the drum, the wire of the evaporator and the accelerating electrode. In this figure 1 is the evaporator, 2 is the drum, 4 is the tungsten wire and 10 the accelerating electrode. The source can be used to study solid specimens containing 10^{-7} g of chlorine. Since the source is based on surface ionization, a simple mass spectrum is obtained which makes the isotopic analysis of chlorine much easier. The source can also be used for other electro-negative elements which show the effect of surface ionization. There are 2 figures and 3 Soviet

Card2/3

SOV/120-59-5-38/46
A Source for the Isotopic Analysis of Chlorine
references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Physico-technical Institute, Ac.Sc., USSR)

SUBMITTED: July 29, 1959

Card 3/3

BAKULIN, Ye.A.; ZAVODNAYA, G.Ye.

Determination of the self-diffusion coefficient of lithium ions
in aqueous LiCl solutions. Zhur.fiz.khim. 36 no.10:2261-2263
O '62. (MIRA 17:4)

1. Fiziko-tehnicheskii institut imeni A.F.Ioffe AN SSSR.

BAKULIN, Ye. A.

Transport number and mobility of lithium ions in aqueous
solutions of LiNO_3 . Zhur. fiz. khim. 36 no.12:2782-2784 D '62.
(MIRA 16:1)

1. Fiziko-tekhnicheskiy institut imeni A. F. Ioffe.

(Ions--Migration and velocity) (Lithium nitrate)

KONSTANTINOV, B.P.; BAKULIN, Ye. A.

Separation of isotopes $Mg(24,26)2+$ and $Cu(63-65)2+$ in aqueous solutions of $MgCl_2$ and $CuCl_2$.

1. Fiziko-tehnicheskiy institut imeni P.F. Ioffe AN SSSR. Submitted June 19, 1963.

ACCESSION NR: AP4041760

8/0076/64/038/006/1655/1656

AUTHOR: Bakulin, Ye. A.; Stepin, Ye. V.

TITLE: Separation of hydrogen isotopes in aqueous solutions of hydrochloric acid.

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 6, 1964, 1655-1656

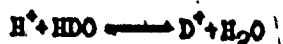
TOPIC TAGS: heavy water, deuterium, isotope separation, electrical transport, transference cell, electromigration, isotope enrichment

ABSTRACT: This work describes the construction of a transference cell (Fig. 1) and presents the results on the separation of hydrogen isotopes in aqueous solutions of hydrochloric acid by the ionic mobility method. The 50 cm³ cathode compartment (1) was filled with HCl of the desired concentration, containing ~12 % deuterium. The anode compartment (2) was ~1 cm³ in volume and was filled with CuCl₂ electrolyte. The formation of a boundary between HCl and CuCl₂ was done in the central part of the column, consisting of a tube (3), 2 mm in diameter and ~8 cm long. To improve the formation of a boundary this tube was filled with 60 - 70 micron quartz sand. Since hydrogen ions will be different in mobilities, then deuterium enrichment will occur in the boundary region. However, the isotope

Card 1/4

ACCESSION NR: AP4041760

exchange takes place in aqueous solutions as follows:



Since deuterium enrichment occurs in the boundary region, this equation will be shifted to the left, toward the increased concentration of deuterium in water. The experimental conditions are such that the boundary between HCl and CuCl₂ is stationary with respect to the instrument. Therefore, solvent flow takes place from the cathode compartment through the boundary into the anode compartment. This solvent, however, is enriched with heavy hydrogen at the boundary. When the concentration of HCl varies from 3.2 N to 10.3 N the shift of the isotopic composition of deuterium was 0.16 % and 0.28 % respectively. It is postulated that this method may be used for the study of the isotopic hydrogen exchange in acid solutions. "The authors express their gratitude to Academician B. P. Konstantinov for his continual interest in this work and his valuable discussions of the results." Orig. art. has: 1 figure.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut (Leningrad Institute of

Card 2/4

ACCESSION NR: AP4041760

Physics and Technology)

SUBMITTED: 19Jun63

DATE ACQ: 00

• ENCL: 01

SUB CODE: .NP

NO REF SOV: 003

OTHER: 000

Card 3/4

ACCESSION NR: AP4041760

ENCLOSURE: 01

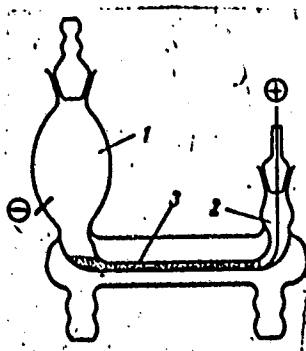


Fig. 1 -- Construction of transference cell

Card 4/4

BAKULIN, Ye.A.; TROSHIN, V.P.; FIKS, V.B.

Temperature dependence of the relative difference in mobilities
of isotopic lithium ions. Zhur. fiz. khim. 38 no.9:2262-2263
S '64. (MIRA 17:12)

1. Fiziko-tekhnicheskii institut imeni Ioffe AN SSSR.

KONSTANTINOV, B.P.; BAKULIN, Ye.A. (Leningrad)

Separation of chlorine isotopes in aqueous solutions of LiCl, NaCl,
and HCl. Zhur. fiz. khim. 39 no.3:592-596 Mr '65. (MIRA 18:7)

1. Fiziko-tekhnicheskii institut imeni Ioffe AN SSSR.

BAKULIN, Ye.A.; SHCHERBININA, V.V.

Measuring the relative difference in mobility of isotope ions
in fractionation columns without a filler. Zhur. fiz. khim.
39 no.6:1328-1330 Je '65. (MIRA 18:11)

1. Leningradskiy fiziko-tekhnicheskoy institut imeni Ioffe.
Submitted June 19, 1963.

L 40835-56

ACC NR: AP6023626

isotope after the experiment. ϵ was found to be independent of the solution temperature at all the temperatures, indicating that changes in the solution temperature cannot appreciably affect the immediate surroundings of the isotopic ion, which determine its mobility. At a concentration of 9-10 g eq/1000 g H₂O, a sharp change is observed in the dependence of ϵ (Li(6)+, Li(7)+) on the concentration of LiNO₃. This is apparently due to the fact that the so-called "total solvation limit" is reached: all the water in the solution is used for a monolayer hydration of the ions present in the solution, and the arrival of new ions causes the start of an impairment of the existing hydration, i. e., of the structure of the solution. Orig. art. has: 4 figures, 2 tables, and 2 formulas.

SUB CODE: 07/ SUBM DATE: 15May64/ ORIG REF: 008/ OTH REF: 006

Cord 2/2 MLP

BAKULIN, YU.A., ed.

Khlopkovodstvo na polivnykh zemliakh (Cotton growing on irrigated lands). Moskva, M-vo khlopkovodstva SSSR, 1951. 263 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 5, August 1954

Barabid, Yu.A.

Sovetskoe khlopkovodstvo v piatoi piatiletke (Soviet cotton growing in the fifth five-year plan). Stenogramma publichnoi lektsii. Moskva, "Znanie," 1953. 40 p. (Vses. o-vo po rasprostraneniui polit. i nauchn. znani, Ser. 5, no. 22)

SO: Monthly List of Russian Accessions, Vol 7, No. 8, Nov. 1954

1. HEATH, W. A.
2. USSR (600)
4. Cotton
7. White Gold, Nauka i zhizn' 20 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Unclassified.

SAVCHUK, P.I.; ASKOCHINSKIY, A.M., redaktor; BABKOV, I.V., redaktor;
~~BAKHUJIN, Yu.A.~~, redaktor; VARUNTSYAN, I.S., redaktor; KRYLOV, G.A.,
redaktor; OBOLINSKIY, K.P., redaktor; SOKOVNIKOV, S.Ye., redaktor;
USTINOV, M.A., redaktor; BALLOD, A.I., tekhnicheskiy redaktor

[Conference of cotton growers of the republics of Central Asia,
Transcaucasia, and Kazakhstan, in Tashkent, November 17-20, 1954]
Soveshchanie rabotnikov khlopkovodstva respublik Srednei Azii,
Zakavkaz'sia i Kazakhskoi SSR v Tashkente 17-20 noiabria 1954 g.
Moskva, Gos. izd-vo selkhoz. lit-ry, 1955. 340 p. (MLRA 9:10)

1. Soveshchaniye rabotnikov khlopkovodstva respublik Sredney Azii,
Zakavkaz'sya i Kazakhskoy SSR, Tashkent, 1954.
(Cotton growing)

L 30363-66 EXT(1) GR
ACC NR AT6008310

SOURCE CODE: UR/0000/65/000/000/0009/0013

AUTHOR: Bakulin, Yu. D. (L'vov); Svenson, A. N. (L'vov) (Candidate of technical sciences)

ORG: none

TITLE: Delay lines with fast control

SOURCE: AN UkrSSR. Elementy sistem otbora i peredachi informatsii (Elements of systems for selecting and transferring information). Kiev, Naukova dumka, 1965, 9-13

TOPIC TAGS: circuit delay line, electronic circuit, *circuit design*

ABSTRACT: Recently delay lines are used for changing the time scales of signals. The authors discuss briefly the theory, design, and operation of two types of discrete electronic delay lines with fast control 1) those based on the principle of the shifting register known from computer technology, and 2) those storing the signal within the memory ring by means of a cyclic commutator and then supplying it with a phase delay after the command from a second commutator. The article lists the advantages and shortcomings of each of the two solutions and offers a circuit diagram for a first kind ten-stage unit having a transfer coefficient of 0.5, a linear amplitude characteristic up to 1 V, and a generally uniform frequency characteristic up to 8 kc. Orig. art. has: 8 formulas and 2 figures.

SUB CODE: 09/ SUBM DATE: 6NOV65/ ORIG REF: 004

Cord 1/1

RUB, M.G.; ONIKHIMOVSKIY, V.V.; BAKULIN, Yu.I.; GLAVATSKAYA, V.N.;
KOSHMAN, P.N.; MAKEYEV, B.V.; RASTUNTSEV, A.P.; SELEZNEV, P.N.;
TERENTENKO, N.A.; YANONIS, V.V.; KOPTEV-DVORNIKOV, V.S., otv.red.;
ANDREYEV, Yu.K., red.izd-va; GOLUB', S.P., tekhn.red.

[Granitoids of the Myao-Chansk region and postmagmatic formations
associated with them] Granitoidy Miao-Chanskogo raiona i svyazannye
s nimi postmagmaticheskie obrazovaniya. Moskva, Izd-vo Akad.nauk
SSSR, 1962. 168 p. (Akademiya nauk SSSR. Institut geologii
rudnykh mestorozhdenii petrografii, mineralogii i geokhimii.
Trudy, no.62). (MIRA 15:8)

(Kharbarovsk Territory--Granite)

BAKULINA, A.M.

Invagination of the small intestine into the stomach following
gastroenterostomy. Khirurgiia no.4:79 Ap '55. (MLRA 8:9)

1. Yeletskaya gorodskaya bol'mitsa Orlovskoy oblasti.
(STOMACH--SURGERY) (INTESTINES--INTUSSUSCEPTION)

BAKULINA, A.M.

Meckel's diverticulum perforated by a fish bone, Khirurgiya 33
no.4:146 Ap '57. (MLRA 10:7)

1. Iz khirurgicheskogo otdeleniya Yeletskey gorodskoy bol'nitsy
(glavnyy vrach O.B.Rosenberger).
(ILEUM--WOUNDS AND INJURIES)

ROMASHOV, D.D.; GOLOVINSKAYA, K.A.; BELYAYEVA, V.N.; BAKULINA, E.D.
POKROVSKAYA, G.L.; CHERPAS, N.B.

Radiation-induced diploid gynogenesis in fishes. Biofizika 5
no. 4:461-467 '60. (MIRA 13:12)

1. Institut biologicheskoy fiziki AN SSSR, Moskva i Institut
prudovogo rybnogo khozyaystva RSFSR, Moskva.
(EMBRYOLOGY—FISHES) (X RAYS—PHYSIOLOGICAL EFFECT)
(FERTILIZATION (BIOLOGY))

ARSEN'YEVA, M.A.; DUBININ, N.P.; ORLOVA, N.N.; BARUIINA, E.D.

Radiation analysis of the duration of mitotic phases in the spermatogenesis of monkeys (*Macaca mulatta*). Dokl. AN SSSR 141 no.6: 1486-1489 D '61. (MIRA 14:12)

1. Chlen-korrespondent AN SSSR (for Dubinin).
(SPERMATOGENESIS IN ANIPALS) (X RAYS--PHYSIOLOGICAL EFFECT)

BAKULINA, E. D., ARSENYEVA, M. A., and ORLOVA, N. N.,

"A Comparative Genetic Analysis of the Radiosensitivity of Germ and Somatic Cells of Monkeys (*Macaca mulatta*) and Mice."

report submitted for the 11th Intl. Congress of Genetics, The Hague, Netherlands,
2-10 Sep 63

1 17883-63

ACCESSION NR: AP3003934

EWI(1)/EWI(m)/BDS/ES(j) AMD/AFFTC/ASD AR/K

S/0205/63/003/004/0570/0575

AUTHORS: Bakulina, E. D.; Orlova, N. N.

TITLE: A comparative analysis of the radiosensitivity¹⁹ of various types of spermatogonia in Macaca mulatta monkeys

SOURCE: Radiobiologiya, v. 3, no. 4, 1963, 570-575

TOPIC TAGS: radiosensitivity, spermatogonia, x-irradiation, sterility, mitotic activity

ABSTRACT: To ascertain the relative sensitivity of various types of spermatogonia to x-irradiation and the reason for the temporary sterility produced by higher doses, 4- to 5-year-old monkeys were exposed to 50 or 100 r and the effects on A and B spermatogonia assessed. All types of B spermatogonia were extremely radiosensitive, the 100-r dose proving lethal; with both doses, death of these cells occurred both at the time when they were starting to divide and during interphase. Type B sub 3 spermatogonia were the most sensitive. With these same doses, the mitotic activity of the less sensitive A spermatogonia was depressed. Both phenomena contribute to the temporary sterility of irradiated monkeys. The authors express their deep gratitude to the senior scientific worker at the laboratory

Cord 1/2

L 17883-63

ACCESSION NR: AP300393A

of radiation genetics, M. A. Arsen'yeva for her guidance and assistance in planning the study." Orig. art. has: 2 figures

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR, Moscow (Institute of Biophysics AN SSSR)

SUBMITTED: 00

DATE ACQ: 15 Aug63

ENCL: 00

SUB CODE: AS

NO REF SCV: 004

OTHER: 006

Card 2/2

BAKULINA, E.D.; ORLOVA, N.N.

Comparative analysis of the radiosensitivity of different types of spermatogonia in the monkey *Macaca mulatta*. *Radio-biologiya* 3 no.4:570-575 '63. (MIRA 17:2)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

BAKULINA, E.V.

Antibiotic sensitivity of principal members of the parasitocenosis
in diphtheria. Antibiotiki 5 no.6:69-72 N-D '60. (MIRA 14:3)

1. Kafedra mikrobiologii (zav. - prof. K.D.Pyatkin) Krymskogo
meditsinskogo instituta.
(DIPHTHERIA) (ANTIBIOTICS)

BAKULINA, E.V.

Role of a parasitocenosis in the pathogenesis of diphtheria. Zhur.
mikrobiol. epid. i immun. 31 no. 5:99 My '60. (MIRA 13:10)

1. Is Krymskogo meditsinskogo instituta.
(DIPHTHERIA)

BAKULINA, E. V.

"Role of Pathogenic Staphylococci and Streptococci as Nonspecific Causative Agents of Experimental Diphtheria." Cand "ed Sci, Crimean Medical Inst, Simferopol', 1954. (RzhBiol, No 7, Apr 55).

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

USSR/Microbiology - General Microbiology.

F-1

Abs Jour : Ref Zhur - Biol., No 12, 1958, 52710

Author : Bakulina, E.V.

Inst : Crimoan Medical Institutc.

Title : Variability of Diphtheria Bacteria in Experimental Animals.

Orig Pub : Tr. Krymsk. med. in-ta, 1957, 17, 148-153.

Abstract : Tests were conducted on experimental animals sensitive and naturally resistant to diphtherial infection (guinea pigs and white mice). The animals were injected subcutaneously with a culture of gravis type; one group was given the injection, a specific serum (1000 AE), on the eve of infection, a second group was given the serum 2 hours after infection, and the third group acted as a control. The antidiphtheric serum markedly increased

Card 1/2

BAKULINA, E.V.

Determination of the sensitivity of diphtheria bacteria to antibiotics
by means of paper indicator disks. Lab. delo 7 no.5:57 My '61.
(MIRA 14:5)

1. Kafedra mikrobiologii Krymskogo meditsinskogo instituta.
(BACTERIA, EFFECT OF DRUGS ON)

BAKULINA, E.V.

Effectiveness of the use of a manifestator for the separation of diphtheria bacteria. Lab. delo 7 no.5:57 My '61. (MIRA 14:5)

1. Kafedra mikrobiologii Krymskogo meditsinskogo instituta.
(DIPHTHERIA)

BAKULINA, E.V.

Characteristics of the bacterial carrier state in experimental ocular diphtheria caused by *Corynebacterium diphtheriae* in association with pathogenic cocci. Report No.1: Dynamics of the isolation of diphtheria bacteria, pseudo-diphtheria bacteria and diphtheroids. Zhur. mikrobiol., epid. i immun. 40 no.4:11-16 Ap '63. (MIRA 17,5)

1. Iz Krymskogo meditsinskogo instituta.

BAKULINA, E.V.

Correlation of toxigenicity, sensitivity to phages and antibiotics
in variants of *Corynebacterium diphtheria* produced in the interaction
with diphtherial, staphylococcal and streptococcal phages. Anti-
biotiki 10 no.2:159-162 F '65. (MIRA 18:5)

1. Kafedra mikrobiologii (zav. - prof. K.D.Pyatkin) Krymskogo
meditsinskogo instituta, Simferopol'.

BAKULINA, E.V.

Genetic role of staphylococcal and streptococcal phages in
toxinogenesis of *Corynebacterium diphtheriae*. Biul. eksp.
biol. i med. 59 no.2:78-81 F '65.

(MIRA 18:7)

1. Kafedra mikrobiologii (zav. - prof. K.D. Pyatkin) Krymskogo
meditsinskogo instituta, Simferopol'.

BAKULINA, E.V.

Ecological complex of nasopharyngeal microflora in diphtheria patients and carriers and lysogenicity of *Corynebacterium diphtheriae*. Zhur. mikrobiol., epid. i immun. 42 no.1:130-135 Ja '65. (MIRA 18:6)

1. Krymskiy meditsinskiy institut.

GERASIMENKO, Yu.Ye.; SHEYN, S.M.; BAKULINA, G.G.; CHEREPIVSKAYA, A.P.;
SEMENYUK, G.V.; YAGUPOL'SKIY, L.M.

Thioindigoid dyes. Part 9: Thioindigoid dyes containing fluorine.
Zhur.ob.khim. 32 no.6:1870-1874 Je '62. (MIRA 15:6)
(Thioindigo)

LISITSYN, V.N.; BAKULINA, G.G.; SEDOVA, T.V.; VOROZHTSOV, N.N., ~~ala~~shiy

Transformation of halogen-containing aromatic compounds in the presence of hexamethylenimine. Part 1: Substitution of a chlorine atom by a hydroxy group in o-chlorocarboxylic acids. Zhur.ob.khim. 32 no.11:3734-3737 N '62. (MIRA 15:11)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva.
(Acids, Organic) (Chlorine compounds)
(Hydroxy compounds)

GERASIMENKO, Yu.Ye.; BAKULINA, G.G.; KARPOV, V.V.

Asymmetric indigoid dyes. Part 1: Unusual transformation of
2-thionaphthene-3'-(N-carboxymethyl) indolindigo. Zhur. ob. kkim.
33 no.6:1988-1991 Je '63. (MIRA 16:7)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov
i krasiteley, filial v g. Rubeshnoye.
(Benzothiophene) (Indole) (Indigo)

GERASIMENKO, Yu. Ye.; BAKULINA, G. G.

Asymmetrical indigoid dyes. Part 2: Mechanism underlying the transformations of 2-thionaphthene-3'-(N-carboxymethyl)indolindigo. Zhur. ob. khim. 34 no.6:2015-2019 Je '64. (MIRA 17:7)
1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley, filial v gorode Rubezhnoye.

584 JUL 1954

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 36/63

Authors : Bakulina, I.N., and Ionov, N.I.

Title : The energy of electron affinity of Cy determined by the method of surface ionization of KCN and KCNS molecules

Periodical : Dok. AN SSSR 99/6, 1023-1024, Dec 21, 1954

Abstract : The surface ionization of potassium thiocyanate (KCNS) and potassium cyanide (KCN) molecules on incandescent W was investigated. During the analysis of spectra of the positive and negative ions formed during surface ionization of KCN and KCNS molecules, the authors discovered positive ions of K39 and K41 isotopes, as well as negative ions with a mass 26. It was established that the magnitude of the energy of the electron cyan affinity is not lower than 3 ev and that its values, at high filament temperatures, were very close to actual. The negative ions with mass 32, discovered during ionization of KCNS, were found to be the ions of the most widely known S32 isotope. Two references; 1-USA and 1-USSR (1948- and 1952). Table.

Institution: Academy of Sciences USSR, The Physico-Technical Institute, Leningrad

Presented by: Academician A.N. Terenin, July 12, 1954

Energy of the electron affinity of the halogen atoms.
A. N. Bakulina and N. I. Ionov (Phys.-Tech. Inst., Lenin-
grad, Moscow, USSR, Acad. Sci. S.S.R. 103, 180-2 (1955))

The electron affinity of F, Cl, Br, and I atoms was detd. by the Saha-Langmuir formula for the surface ionization of alk. halide salts. The difficulty with that formula is its inclusion of ϕ (Richardson) work function, which can be detd. only indirectly. A modification of that formula that does not contain ϕ , is used to calc. the 6 possible combinations of the difference, $S_1 - S_2$, in electron affinity of 2 halogens. These 6 differences (expressed in e.v.) are: $S_{Cl} - S_I = 0.48 \pm 0.03$, $S_{Cl} - S_{Br} = 0.21 \pm 0.06$, $S_{Cl} - S_F = 0.21 \pm 0.03$, $S_{Br} - S_I = 0.27 \pm 0.02$, $S_{Br} - S_F = 0.03 \pm 0.02$, $S_F - S_I = 0.24 \pm 0.04$. In the absence of a sufficiently accurately known value for any one halogen atom, a provisional value of 3.6 is assumed for Br, i.e. $S_{Br} = 3.6$ e.v., and this, combined with the above difference values, yields: $S_{Cl} = 3.8$, $S_I = 3.3$, and $S_F = 3.5$ e.v. V. H. G.

Leningradskiy fiziko-tekhnicheskij Institut Akademii nauk SSSR, Predstavleno akademikom A. A. Lebedevym.

BAKULINA, I. N., Cand Chem Sci (diss) "Determination of the
Energy of Electron Affinity by ⁷⁵A Method of Surface Ionization."
Len, 1957. 15 pp (Len Order of Lenin State Univ im A. A. Zhdanov),
100 copies. Bibliography at the end of the text (11 titles) (KL,
50-57, 118)

20-1-11/44

AUTHORS: Bakulina, I.N., Ionov, N.I.

TITLE: Determination of the Energy of Electronic Affinity of Sulphur Atoms by Means of the Method of Surface Ionization (Opredele-niye energii elektronogo srodstva atomov sery metodom pover-khnostnoy ionizatsii)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 1, pp. 41 - 44 (USSR)

ABSTRACT: The experiments described by the present paper permit a very reliable determination of the energy of the electronic affinity of sulphur atoms. The authors determined the difference of the energies between electronic affinity of bromine atoms and sulphur atoms by studying the surface ionization of the molecules of sodium bromides (NaBr) and sodium sulphites (Na₂S). For this purpose bundles of NaBr-molecules and Na₂S molecules taken from two independent platinum furnaces were directed on-to a tungsten wire heated up to a temperature T. The positive and negative ions formed on the wire were analyzed by means of a magnetic sector mass spectrometer. During ionization of NaBr and Na₂S ions only Na⁺ ions are observed in the spectrum of the positive ions, and Br⁻ ions and S⁻ ions in the

Card 1/2

20-1-11/44

Determination of the Energy of Electronic Affinity of Sulphur Atoms by Means of the Method of Surface Ionization

spectrum of the negative ions. The method used for measurements is discussed in short. This method does not give absolute values for the energy of electronic affinity. As a result of their experiments the authors give the value $s_2 = 2,37$ eV for the energy of the electronic affinity of the sulphur atoms. This value agrees with the value $s_2 > 2,2$ eV found by ionization of SO_2 molecules by means of an electron collision. A recently undertaken determination of the energy (by means of the method of photo ionization of the electrons from negative S^- ions) resulted in the value $s_2 = 2,07 \pm 0,07$ eV. The deviation of this value from the value found here may indicate that the energy of the electronic affinity of the bromine atoms is less than 3,6 eV. There are 1 figure and 5 references, 3 of which are Slavic.

ASSOCIATION: Physico-Technical Institute AS USSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)
PRESENTED: April 27, 1957, by A.A. Lebedev, Academician
SUBMITTED: April 23, 1957
AVAILABLE: Library of Congress

Card 2/2

16

AUTHORS: Vasil'yev, G.F., Politova, S.V. 101-1-1-25/24
 Parvova, L.Ya. and Yasnopol'skaya, A.A.

TITLE: Interdepartmental Seminars on Cathode Electronics (The 11th Meeting) (Mezhdudovedatsenny seminar po katodnoy elektronike) (11-e sasedaniya)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 4, pp 731 - 732 (USSR)

ABSTRACT: A meeting of the seminar took place on December 1, 1958 at the Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio-engineering and Electronics of the A.S.S.S.R.). During the meeting 8 papers were read. Yu.G. Plushchinsky read a paper entitled: "Kinetics of the Adsorption of Oxygen on the Surface of Tungsten". The second paper, by I.M. Dykman and S.M. Pekar, dealt with "The Adsorption Photo-effect of Semiconductors in the Region of the Exited Light Absorption". The paper by T.L. Matkhyrich was devoted to "The Problem of the Secondary Electron Emission of Fine Films of a Number of Organic Substances". The problem of "Surface Ionization in a Strong Electric Field on a Surface with a Non-homogeneous Work Function" was considered by S.Ya. Izdberg and N.I. Ionov. I.M. Babulina and N.I. Ionov read a paper entitled "Determination of the Electron Attachment Energy and of the Potentials of Atoms by the Method of Surface Ionization". N.L. Yasnopol'skiy and A.P. Alekseyevskiy dealt with the problem of "Passage of Steady-state Currents Through a Dielectric When the Current Carriers Are Introduced Through One of the Contacts by Means of Electron Bombardment". The lecture by S.A. Sushchev and K.G. Vukin discussed the following - "The Possibility of the Analysis of the Total-energy Distribution of Electrons in a Quasi-spherical Condenser". The work by M.G. Kapiton, S.A. Fridrikhov and A.M. Shul'ma dealt with an investigation of the secondary electron emission and the characteristic energy losses of a number of dielectrics (glass, mica, fluorite and alkali-haloid monocrystals).

Card 2/8

USSR-86-10997

SOV/76-33-9-28/37

5(4)

AUTHORS: Bakulina, I. N., Ionov, N. I.

TITLE: Determination of the Electron Affinity of Halogen- and Sulphur Atoms as Well as of the CN-Radical by the Method of Surface Ionization

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 2063 - 2072 (USSR)

ABSTRACT: Due to the lack of reliable methods of determination, an accurate theoretical calculation of the electron affinity (s) has hitherto been made only for hydrogen, while for all other elements various methods of extrapolation were employed. Direct experimental methods of determining (s) probably are the most reliable ones. One of the first of its kind is the method of surface ionization (SI) which may be used for the determination of (s) of most atoms in which (s) is a positive value. However, this method has also some disadvantages which are to be taken into account. Some values are given which were obtained for the $s(X)$ (Refs 2,3) by various direct experimental methods (Table 1). In the present case, the (SI)-method was used for a determination of the difference $s_1 - s_2$ of two

Card 1/3

Determination of the Electron Affinity of Halogen- and Sulphur Atoms as Well as of the CN-Radical by the Method of Surface Ionization

SOV/76-33-9-28/37

negative ions with the application of equations which avoided the above disadvantages and yielded more accurate results. The ionic current was measured on a mass spectrograph (Fig 1) and an EMU-3 electrometer. The values of $s_1 - s_2$ for all halogens

(Table 2) are independent on temperature of the tungsten filament of the ionic source within the temperature range under investigation (1750-2230°K). The value of (s) for fluorine is smaller than that for chlorine, i.e. contrary to expectation, there is no uniform increase in the (s) of the halogens with a decrease of the atomic number. Determination of (s) for the sulphur atom, which was equally made by measuring the negative ionic current, yielded a value of 1.23 ± 0.05 eV with the observation of independence on the temperature of the tungsten filament (Table 4). Further, the authors determined the (s) of the CN and examined the applicability of the method of (s)-determination for radicals. Finally, preliminary qualitative experiments were made to investigate the (SI) of Se and Te on tungsten, as well as of Sb and As on thorium-oxide cathodes (TOC) (with a molybdenum core). In this connection, the authors

Card 2/3

Determination of the Electron Affinity of Halogen- and Sulphur Atoms as Well as of the CN-Radical by the Method of Surface Ionization SOV/76-33-9-28/37

investigated the self-emission of the negative ions of (TOC) and found that the (SI) on (TOC) may be employed for the preparation of effective sources of negative ions of electro-negative elements. There are 2 figures, 4 tables, and 22 references, 8 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR Fiziko-tekhnicheskii institut, Leningrad
(Academy of Sciences of the USSR, Leningrad, Physical-technical Institute)

SUBMITTED: March 10, 1958

Card 3/3

21(1)

SOV/56-36-4-5/70

AUTHORS: Bakulina, I. N., Ionov, N. I.

TITLE: Determination of the Ionization Potential of Uranium Atoms by the Method of Surface Ionization (Opredeleniye potentsiala ionizatsii atomov urana metodom poverkhnostnoy ionizatsii)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1001-1005 (USSR)

ABSTRACT: In the present paper the authors describe a method of determining the ionization potential differences of two arbitrary elements which were ionized simultaneously on a heated metallic surface (tungsten or tantalum). The authors had already employed this method (Ref 1). In the introduction, the theoretical bases of the method are discussed, and for the ion current the formula

$$I = \xi n A^* \exp \left[\left(\phi^* + \sqrt{E E} - V \right) \xi / kT \right]$$
 is given.
(ξ = electron charge, n = number of atoms impinging per second on the surface, T = surface temperature, A^* = a function weakly dependent on T , into which there also enters the statistical sum of ion and atom). In the following chapter the measuring method is discussed; Figure 1 is a systematic representation

Card 1/4

SOV/56-36-4-5/70

Determination of the Ionization Potential of Uranium Atoms by the Method of Surface Ionization

of the experimental arrangement. The substances, on which surface ionization was investigated, were mounted on tungsten- or tantalum filaments and served as ion sources of the mass spectrometer. No pure metals, but the salts NaCl, LiCl, LiF, UCl_4 , and UF_4 were investigated. Measurements were carried out according to two methods: either the ion current of F^- in LiF-UF_4 and Cl^- respectively in NaCl-LiCl or LiCl-UCl_4 were measured, or only the dependence of the positive ion current on T , and the diagram $\lg(I_1/I_2) = f(1/T)$ was made. Filament temperature in all cases was 2250°K for tantalum and 2650°K for tungsten base. The apparatus and the method had been checked by means of ΔV -measurement of sodium- and lithium atoms, the ionization potential of which is well known. Measuring results are given in form of diagrams. Figure 2 shows $\lg(I_T/I_{2250}) = f(1/T)$ for the ionization of Li and Na on tantalum (straight line in the interval $1700 - 2375^\circ\text{K}$). An arithmetic mean of 85 measurements resulted in $V_{\text{Li}} - V_{\text{Na}} =$

Card 2/4

SOV/56-36-4-5/70

Determination of the Ionization Potential of Uranium Atoms by the Method of Surface Ionization

0.25 ± 0.02 v according to the first method; according to the second (Fig 3) averaging within the same temperature range (diagram $\lg(I_1/I_2) = f(1/T)$) with respect to 10 series of measurements resulted in: $V_{Li} - V_{Na} = 0.26 \pm 0.05$ v. Figure 4 shows $\lg(I_T/I_{2650}) = f(1/T)$ for ionization of LiF and UF_4 in tungsten in the temperature interval of 2100 - 2800°K, and figure 5 shows $\lg(I_{Li}/I_U) = f(1/T)$; from the slope of the curve (straight line) the difference $V_U - V_{Li}$ may be determined as 0.68 ± 0.08 v. Thus, $V_U = 5.40 + 0.68 = 6.08 \pm 0.08$ v results for the ionization potential of uranium atoms. The accuracy of temperature measurement by means of an optical pyrometer amounted to $2 \pm 3\%$. There are 5 figures and 4 Soviet references.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR
Card 3/4 (Leningrad Physico-Technical Institute of the Academy of Sciences)

ACCESSION NR: AP4022712

S/0020/64/155/002/0309/0311

AUTHOR: Bakulina, I. N.; Ionov, N. I.

TITLE: Determining the energy of electron affinity of copper, silver and gold atoms by the surface ionization method

SOURCE: AN SSSR, Doklady*, v. 155, no. 2, 1964, 309-311

TOPIC TAGS: electron affinity, energy, copper, silver, gold, surface ionization method, iodine

ABSTRACT: The energy of the electron affinity of copper, silver, and gold atoms was determined by a method previously described by the authors (ZhFKh, 33, No. 9, 2063 (1958)) in which the currents of the negative ions of two elements are compared during surface ionization on heating a polycrystalline tungsten filament to 1800-2300K. The electron affinity energy (S) of iodine was used for comparison (S = 3.07 ev). In the relationship $\frac{I_1}{I_2} = \frac{n_1 A_1}{n_2 A_2} \exp \frac{e(S_1 - S_2)}{kT}$, n_1 and n_2 are the surface flows of atoms of the elements investigated, I_1/I_2 is the current

Card 1/2

ACCESSION NR: AP4022712

ratio of negative ions of these elements, e = electron charge, k = Boltzmann constant, φ_{\min} = minimum value of the local work function of the surface, and A_1 and A_2 = ratios of the statistical sums of the ionic and atomic stages. S_1 - S_2 may be calculated from the equation or determined from the slope of the graph of $\log(I_1/I_2) = f(1/T)$. The values obtained were: $S(\text{Cu}) = 1.5 \pm 0.5$ ev; $S(\text{Ag}) = 2.0 \pm 0.2$ ev; and $S(\text{Au}) = 2.8 \pm 0.1$ ev. Positive and negative ions of the elements are formed on the heated surface; and the ratio of the current of these ions can be expressed by

$$\frac{I_+}{I_-} = \frac{A_+ \exp \frac{e(\varphi_+ - V)}{kT}}{A_- \exp \frac{e(S - \varphi_-)}{kT}}$$

Values calculated from this equation were: $S(\text{Cu}) = 2.1 - 2.2$ ev.; $S(\text{Ag}) = 2.0 - 2.3$ ev. Orig. art. has: 1 table, 1 figure and 4 equations.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute, Academy of Sciences, SSSR)

SUBMITTED: 30Oct63

DATE ACQ: 08Apr64

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 002

Cord 2/2

"APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000103120018-5

APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000103120018-5"